WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Thursday, January 05, 2006

Hide?	Set Name	Query	Hit Count
		DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
☐	L27	L26 and coat$ and film	8
☐	L26	L24 and alkoxysilane	8
☐	L25	L24 and oxysilane	0
☐	L24	L23 and perfluoro$alkyl	29
☐	L23	L22 and perfluoro$	79
☐	L22	(silane or siloxane) and Kevlar	561
☐	L21	perfluoroalkylethyltris$ and (silane or siloxane) and Kevlar	0
☐	L20	perfluoroalkylethyltris$ or (2-(2-(2-methoxyethoxy)ethoxy)ethoxy)silane	3
☐	L19	perfluoroalkylethyltris(2-(2-methoxyethoxy)ethoxy)silane	2
☐	L18	L17 and film	11
☐	L17	L16 and water	11
☐	L16	L14 and alkoxy$silane	11
☐	L15	L14 and perfluoro$silane	0
☐	L14	L13 and perfluoro$	59
☐	L13	L12 and coat$	397
☐	L12	(Kevlar or Twaron) and silane	472
☐	L11	L10	6
		DB=PGPB,USPT,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
☐	L10	L9 and perfluoro$ and silane	11
☐	L9	p-phenylene same (fiber or fabric or textile)	1627
☐	L8	L2 and terephthal$amide	0
☐	L7	L2 and terephthalamide	0
☐	L6	L2 and p-phenylene	5
☐	L5	L2 and L3	0
☐	L4	L3 and L2	0
☐	L3	p-phenylene terephthalamide	1311
☐	L2	L1	690
		DB=PGPB,USPT,EPAB,JPAB; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
☐	L1	perfluoro$silane	690

END OF SEARCH HISTORY

- Home / Search
- New Journal - AZojomo
- MyAZoM
- Materials
- Applications
- Industries
- Conference Diary
- Course Diary
- Exhibition Diary
- Industry News
- Books
- Media Packs
- AZoM Info
- Our Partners
- Help/FAQ's
- Terms and Privacy

AZoM.com Supplier Data

Polyaramid Polyparaphenylene Terephthalamide (Kevlar / Twaron) – Properties and Applications - Supplier Data by Goodfellow

Topics Covered

Background

An infusible, wholly aromatic polymer that can strictly be described as nylon T,T - but rarely is. Manufactured only as a fibre (by solution spinning), it has a very high thermal stability and temperature and flame resistance. In contrast to its chemical isomer Nomex®, its tensile properties are up to an order of magnitude greater than those of normal textile fibres, because of a high degree of molecular orientation resulting from its stiff linear molecules and their propensity for forming liquid crystals in the spinning solution. In common with the small number of other highly oriented materials, these fibres have a (small) negative co-efficient of thermal expansion in the axial direction.

Key Properties

Chemical Resistance	
Acids - concentrated	Poor
Acids - dilute	Fair
Alcohols	Good
Alkalis	Good
Aromatic hydrocarbons	Good
Greases and Oils	Good
Halogens	Good
Ketones	Good

Mechanical Properties

Email to a friend
Suppliers
Goodfellow Supplier Details
Buy Polyaramid Materials From Goodfellow
Services
Experts

Tensile modulus (GPa)	59-124
Tensile strength (MPa)	2760
Physical Properties	
Density ($g.cm^{-3}$)	1.44
Resistance to Ultra-violet	Fair
Thermal Properties	
Coefficient of thermal expansion ($x10^{-6} K^{-1}$)	-2 along axis
Lower working temperature (°C)	-200
Specific heat ($J.K^{-1}.kg^{-1}$)	1400
Thermal conductivity ($W.m^{-1}.K^{-1}$)	0.04 @ 23
Upper working temperature (°C)	180-245

Properties Polyaramid Fibre

Property		Value		
Material		Kevlar 29®	Kevlar 49®	Kevlar Ht (T129)
Specific Modulus	cN/tex	4000	8300	5200
Specific Tenacity	cN/tex	190	190	235
Density	$g.cm^{-3}$	1.44	1.45	1.44
Extension to break	%	3.7	1.9	3.6
Modulus	GPa	58	120	75
Shrinkage @100°C	%		0.02	
Tenacity	GPa	2.76	2.76	3.32

Applications

Quite widely used in composites which are lighter than those based on carbon fibre and electrically insulating. Their mechanical properties are generally inferior; more specifically they have a high specific tensile strength approaching that of carbon fibre composites, but quite low strength in compression.

In addition to composites, applications include protective clothing and body armour, friction products, elastomer reinforcement (e.g. hoses and drive belts), ropes and cords and as high strength high modulus fabrics e.g. high performance sailcloths.

Source: Goodfellow

For more information on this source please visit Goodfellow.


top

back